INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT

FIELD DETERMINATION OF MOISTURE CONTENT OF SOILS
ITM No. 506-08T

1.0 SCOPE.

1.1 This test method covers the procedure for drying compacted soils in the field.

1.2 The values stated in either acceptable English or SI metric units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, SI metric units are shown in parenthesis. The values stated in each system may not be exact equivalents; therefore each system shall be used independently of the other, without combining values in any way.

1.3 This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 AASHTO Standards.

M 231 Weighing Devices Used in the Testing of Materials

3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

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4.0 SIGNIFICANCE AND USE. This ITM shall be used to determine the moisture content of compacted soils in the field.

5.0 APPARATUS.

5.1 Balance, Class G 20, in accordance with AASHTO M 231

5.2 Gasoline or bottled gas stove, or electric hot plate

5.3 Drying pan, made of material resistant to corrosion and not subject to change in weight (mass) or disintegration on repeated heating and cooling

5.4 Miscellaneous equipment, such as spoons, brushes and gloves, as needed

6.0 SAMPLING. Obtain a sample representative of the soil to be tested. The sample shall be a minimum of 1000 g.

7.0 PROCEDURE.

7.1 Determine the weight (mass) of the drying pan

7.2 Place the sample into the drying pan and weigh the drying pan and sample

7.3 Dry the sample on the stove or hot plate. Stir the sample while drying and break up any clods. Care should be taken not to burn the sample.

7.4 Weigh the sample and drying pan after 15 minutes of drying. Continue drying the sample and reweigh at 5 minute intervals until constant weight (mass) is achieved.

Note 1 - Constant weight (mass) is defined as the weight (mass) at which further drying does not alter the weight (mass) by more than 0.05 percent.

8.0 CALCULATIONS.

Calculate the percent moisture as follows:

$$\text{Moisture, \%} = \frac{W_1 - W_2}{W_2 - W_3} \text{ x } 100$$

where:

W_1 = weight (mass) of pan and wet soil, g
W_2 = weight (mass) of pan and dry soil, g
W_3 = weight (mass) of pan, g

9.0 REPORT. The moisture content is reported to the nearest 0.1 percent.